

TO: John Arnquist, Ron Devitt
FROM: Darrel Anderson
SUBJECT: Metaline Falls STP
DATE: April 23, 1973

State of
Washington
Department of
Ecology



On November 16, 1972, an STP survey was conducted at Metaline Falls, Washington. The survey period was from 0830 to 1500 hours.

Three lagoons are used for sewage with no chlorine added. The lagoons are in poor condition, grass and weeds are present in all three lagoons. Security is also poor, with no fence around the lagoon area.

Percent reduction in sewage is excellent. Five day BOD is 89%, COD 80%, and total solids 60%. PH averaged at 7.4.

DA:bj

18 IN
2 OUT

- SOMETHING WRONG

STP SURVLY REPORT FORM
(EFFICIENCY STUDY)

City Metaline Falls Plant Type Lagoon Population Served 500 Design Capacity Unknown
 Receiving Water Pend Oreille River Engineer Unknown
 Date 11-16-72 Survey Period 0830-1500 Survey Personnel Darrel Anderson
 Comp. Sampling Frequency 1/2 hour Weather Conditions Partly cloudy, cold
 (last 48 hours)
 Sampling Alequot 1200 ml

PLANT OPERATION

Total Flow 288,000 g/day How Measured 90° "V" notch weir
 Max. (Flow) 424,500 Time of Max. 1000 & 1500 Min. 219,000 Time of Min. 0830
 Pre Cl₂ --- 0/day Post Cl₂ --- 0/day
No chlorine

FIELD RESULTS

Determinations	Influent				Effluent			
	Max.	Min.	Mean	Median	Max.	Min.	Mean	Median
Temp. °C	9.0	8.0	8.5	8.5	5	5	5	5
pH	9.4	7.3	7.4	8.2	7.6	7.0	7.3	7.2
Conductivity (umhos/cm)	Not Determined				Not Determined			
Settleable Solids	6	5	5.5	5	Trace			

LABORATORY RESULTS ON COMPOSITE IN PPM

Laboratory Number	Influent	Effluent	% Reduction
	72-4548	72-4550	
5-Day BOD	18	< 2	89
COD	68	14	80
T.S.	275	112	60
T.N.V.S.	226	94	58
T.S.S.	114	2	98
N.V.S.S.	77	0	100
pH	8.4	7.6	--
Conductivity	210	180	--
Turbidity	30	3	--

Metairie Falls

BACTERIOLOGICAL RESULTS

$\text{Na}_2\text{S}_2\text{O}_3$ added to sample _____ No chlorine
After _____ min.

LAB #	SAMPLING TIME	COLONIES/100 MLS (MF)	Cl Residual	
			ppm	(after secs)
72-4544	0845	16,000		Note
72-4545	0945	6,000	"	
72-4546	1245	9,000	"	
72-4547	1445	4,500	"	

Operator's Name _____ Phone # _____

Comments: _____

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
 WATER QUALITY LABORATORY

ORIGINAL TO:
D. Anderson.....
 COPIES TO:
B. Smith.....

 LAB FILES.....

DATA SUMMARY

Source METALINE FALLS LAGOON

Collected By D.A.

Date Collected 11-16-72

Goal, Pro./Ob! 3.2.23

Log Number:	7245-44	45	46	47	48	49	50				STORET
Station:	845	945	1245	1445	Cont. 100-000	Cont. 100-100	Cont. 100-100				
pH	-	-	-	-	9.4	7.4	7.6				00403
Turbidity (JTU)	-	-	-	-	30.	15.	3.				00070
Conductivity (µmhos/cm) @ 25°C	-	-	-	-	210.	150.	150.				00095
COD	-	-	-	-	68.	32.	14.				00340
BOD (5 day)	-	-	-	-	18	10.	< 2.				00310
Total Coliform (Col./100ml)	16,000	6,000	9,000	4,500							31504
Fecal Coliform (Col./100ml)	12,000	300	460	160							31616
NO3-N (Filtered)											00620
NO2-N (Filtered)											00615
NH3-N (Unfiltered)											00610
T. Kjeldahl-N (Unfiltered)											00625
O-PO4-P (Filtered)											00671
Total Phos.-P (Unfiltered)											00665
Total Solids	-	-	-	-	275.	167.	112.				00500
Total Non Vol. Solids	-	-	-	-	226.	137.	94.				
Total Suspended Solids	-	-	-	-	114.	45.	2.				00530
Total Sus. Non Vol. Solids	-	-	-	-	77.	30.	0				

Note: All results are in PPM unless otherwise specified. ND is "None Detected"
 Convert those marked with a * to PPB (PPM X 10³) prior to entry into STORET

Summary By Stephen D. Robb Date 12-6-72

U.S. DEPARTMENT OF THE INTERIOR
 FEDERAL WATER POLLUTION CONTROL ADMINISTRATION
**SEWAGE TREATMENT PLANT OPERATION AND MAINTENANCE
 PRACTICES QUESTIONNAIRE**

FORM APPROVED BY
 DOMESTIC BUREAU NO. 42-572

CHECK ONE <input type="checkbox"/> 1ST AUDIT <input type="checkbox"/> RE-AUDIT	DATE OF AUDIT 11-11-73	PLANT DESCRIPTION CODE (For Office Use Only)
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A. GENERAL INFORMATION

1. PROJECT (State, Number)	SCOPE OF PROJECT (new plant, additions, etc.)
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2. PLANT LOCATION (City, county) MILWAUKEE TOWNSHIP, WASHINGTON COUNTY	IDENTIFICATION OF AREA SERVED CITY & POND GRILL, KANES HOUSE
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3. POPULATION

3A. FRACTION OF AREA POPULATION SERVED (%)	3B. PLANT DESIGN (population equivalent)	3C. SERVED BY PLANT (domestic)
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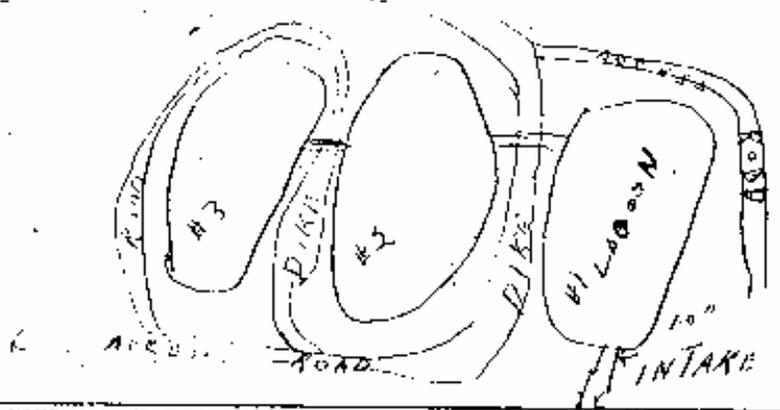
4. TYPE OF COLLECTION SYSTEM

4A. <input type="checkbox"/> COMBINED <input type="checkbox"/> SEPARATE <input type="checkbox"/> BOTH	4B. ESTIMATED FLOW CONTRIBUTED BY SURFACE OR GROUND WATER (infiltration, mgd)
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5. YEAR COMMUNITY BEGAN SEWAGE TREATMENT 1963	6. YEAR PRESENT SYSTEM PLACED IN OPERATION	
	6A. SEWER 1963	6B. PLANT
		6C. ANCILLARY WORKS

7A. SIZE OF PLANT SITE (acres) 1.9 AC	7B. APPROXIMATE AREA LEFT FOR EXPANSION (acres) 1
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8A. IN THE SPACE PROVIDED BELOW FURNISH A SIMPLIFIED FLOW DIAGRAM OR A WRITTEN DESCRIPTION OF THE PLANT UNITS IN FLOW SEQUENCE. INCLUDE THE METHOD OF ULTIMATE SLUDGE DISPOSAL. SHOW APPROXIMATE SURFACE AREA OF STABILIZATION PONDS AND NUMBER OF CELLS. INDICATE WHETHER FLOW TO AND FROM PLANT IS BY PUMPING OR GRAVITY.



8B. NOTE ANY SIGNIFICANT OR UNIQUE PROCESSING CONDITIONS.

B. RECEIVING STREAM

9A. NAME OF STREAM	9B. STREAM FLOW IS		<input type="checkbox"/> INTERSTATE <input type="checkbox"/> INTRASTATE
	<input type="checkbox"/> PERENNIAL <input type="checkbox"/> INTERMITTENT	<input type="checkbox"/> NATURAL <input type="checkbox"/> REGULATED	<input type="checkbox"/> COASTAL

B. CURRENT PERFORMANCE AND PLANT LOADING INFORMATION

1A. ANNUAL AVERAGE DAILY FLOW RATE (mgd)	1B. PEAK FLOW RATE (mgd)		1C. MINIMUM FLOW RATE (mgd)
	DRY WEATHER	WET WEATHER	
2. AVERAGE BOD OF RAW SEWAGE (5 DAY 20°C) (ppm)	3. AVERAGE SETTLEABLE SOLIDS OF RAW SEWAGE (SHOUFF COM) (mg/l)		
4. AVERAGE SUSPENDED SOLIDS OF RAW SEWAGE (mg/l)	5. AVERAGE COLIFORM DENSITY OF RAW SEWAGE (MPN/100 ml)		
6. ANNUAL AVERAGE PLANT REDUCTION %			
6A. BOD (%)	6B. SETTLEABLE SOLIDS (%)	6C. SUSPENDED SOLIDS (%)	6D. COLIFORM DENSITY (%)

7A. DOES PLANT HAVE STANDBY POWER GENERATOR FOR MAJOR PUMPING FACILITIES? <input type="checkbox"/> YES <input type="checkbox"/> NO	7B. ADEQUATE ALARM SYSTEM FOR POWER OR EQUIPMENT FAILURES? <input type="checkbox"/> YES <input type="checkbox"/> NO
8. ARE CHLORINATION FACILITIES PROVIDED? <input type="checkbox"/> YES <input type="checkbox"/> NO IF YES, ANSWER 8A THRU G	IF YES, IS CHLORINATION CONTINUOUS? <input type="checkbox"/> YES <input type="checkbox"/> NO IF NO, EXPLAIN REASON FOR INTERMITTENT CHLORINATION

8A. PURPOSE OF CHLORINATION

8B. TYPE OF CHLORINATOR

8C. POINT OF APPLICATION OF CHLORINE	8D. CAN BYPASSED SEWAGE BE CHLORINATED? <input type="checkbox"/> YES <input type="checkbox"/> NO
8E. AVERAGE FEED RATE OF CHLORINE (lb/day)	8F. CHLORINE RESIDUAL IN EFFLUENT _____ PPM AT END OF _____ MINUTES
8G. MINIMUM SUPPLY OF CHLORINE STORED ON PREMISES (lb)	

9. ARE FACILITIES PROVIDED FOR COMPLETE BYPASS OF RAW SEWAGE?
 YES NO IF YES, ANSWER A THRU G BELOW, ANSWER H IN EITHER CASE.

9A. FREQUENCY (times monthly)	9B. AVERAGE DURATION (hours)	9C. REASON FOR BYPASSING
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9D. ESTIMATED FLOW RATE DURING BYPASS IS <input type="checkbox"/> WITHIN HYDRAULIC CAPACITY OF PLANT <input type="checkbox"/> BEYOND HYDRAULIC CAPACITY OF PLANT BY	9E. DOES SEWAGE OVERFLOW IN DRY WEATHER? <input type="checkbox"/> YES <input type="checkbox"/> NO
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9F. TYPE OF DIVERSION STRUCTURE	9G. AGENCIES NOTIFIED OF BYPASS ACTION
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9H. DO OPERATORS HAVE OPTION TO BYPASS INDIVIDUAL PLANT UNITS? (If no, has this caused any operational problems?)
 YES NO

10A. ARE BACK FLOW DEVICES PROVIDED AT ALL CONNECTIONS TO CITY WATER SUPPLY? (If no, explain)
 YES NO

10B. CHECK TYPE OF BACK FLOW PREVENTION DEVICE
 DOUBLE CHECK VALVE PRESSURE OPERATED PHYSICAL DISCONNECT OTHER (specify)

11. USES OF TREATMENT PLANT EFFLUENT

12. USES OF RECEIVING STREAM WITHIN 10 MILES OF OUTFALL

13. HAVE THERE BEEN ANY ODOR COMPLAINTS BEYOND THE PLANT PROPERTY? (If yes, explain)
 YES NO

14. OBSERVED APPEARANCE AND CONDITION OF EFFLUENT, RECEIVING STREAM, OR DRAINAGE WAY

15. STABILIZATION PONDS

A. WEEDS CUT AND VEGETATIVE GROWTH IN PONDS ELIMINATED? <input type="checkbox"/> YES <input type="checkbox"/> NO	B. BANKS AND DIRT'S MAINTAINED (erosion etc.)? <input type="checkbox"/> YES <input type="checkbox"/> NO
C. FENCING AND FENCING - POLLUTED WATER? SIGNS FREQUENT AND IN GOOD REPAIR? <input type="checkbox"/> YES <input type="checkbox"/> NO	D. FREQUENCY OF INSPECTION BY OPERATOR
E. WATER DEPTH (feet) 3.77 _____ HIGH _____ LOW _____ MEDIUM	
F. ADEQUATE CONTROL OF DEPTH? <input type="checkbox"/> YES <input type="checkbox"/> NO	G. SEEPAGE REPORTED? <input type="checkbox"/> YES <input type="checkbox"/> NO
H. ANY REPORTS OF GROUND WATER CONTAMINATION FROM POND (If yes, give details)? <input type="checkbox"/> YES <input type="checkbox"/> NO	

I. MOSQUITO BREEDING PROBLEM? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	IF YES, NAME OF SPECIES IF KNOWN	J. CAN SURFACE RUN-OFF ENTER POND? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
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C. SUPERVISORY SERVICES

1. IS A CONSULTING ENGINEER RETAINED OR AVAILABLE FOR CONSULTATION ON OPERATING AND MAINTENANCE PROBLEMS?
 YES NO IF YES IS IT ON: CONTINUING BASIS OR UPON REQUEST BASIS
IF CONTINUING BASIS, WHAT IS THE FREQUENCY OF VISITS:

2. DO OPERATORS AND OTHER PERSONNEL ROUTINELY ATTEND SHORT COURSES, SCHOOLS OR OTHER TRAINING ACTIVITIES?
 YES NO
IF YES, CITE COURSE SPONSOR AND DATE OF LAST COURSE ATTENDED
IF NO, DO YOU KNOW OF ANY COURSES AVAILABLE TO SERVE THIS AREA?

3A. ARE ALL EQUIPMENT AND PARTS OF THE PRESENT PLANT STILL IN OPERATION? YES NO (If no, explain)

B. ARE PROCESSING UNITS OPERATING AT DESIGN EFFICIENCY? YES NO (If no, explain)

4. HAVE THERE BEEN ANY DIFFICULTIES WITH THE SEWAGE TREATMENT PLANT?

A. STRUCTURAL YES NO (If yes explain)

B. MECHANICAL YES NO (If yes, explain)

C. OPERATIONAL YES NO (If yes, explain)

D. BASED ON OPERATING EXPERIENCE TO DATE WHAT IF ANY CHANGES WOULD YOU RECOMMEND TO IMPROVE OPERATION OF THE PLANT?

5. ARE OPERATING RECORDS MAINTAINED? YES NO
(If maintained, check general items included)

REPORTED? YES NO
 TO WHOM?

FREQUENCY	WEATHER	FLOW	SLUDGE HANDLED	CHEMICALS USED	DIGESTER	GRIT HANDLED	ELEC. USED	COST DATA	AIR USED	MAIN-TENANCE	OTHER
DAILY											
WEEKLY											
MONTHLY											
ANNUALLY											

6. ARE LABORATORY RECORDS MAINTAINED? *(check appropriate box)*

NOT AT ALL DAILY WEEKLY MONTHLY ANNUALLY

IF MAINTAINED CHECK FORM OF RECORD BELOW:

LOG BOOK TABULAR SHEET SEPARATE BY OPERATION CONTROL CHARTS GRAPHS

WHAT PLANT AND/OR LABORATORY EQUIPMENT, GAGES AND METERS ARE CALIBRATED PERIODICALLY?

7. IS LABORATORY TESTING ADEQUATE FOR THE CONTROL REQUIRED FOR THIS SIZE AND TYPE OF PLANT?

YES NO *(If no, explain)*

B. INDUSTRIAL WASTES DISCHARGED TO MUNICIPAL SYSTEM:	A. NUMBER AND TYPES OF INDUSTRIES DISCHARGING TO SYSTEMS
R. POPULATION EQUIVALENT (POD) OF INDUSTRIAL WASTES (pe)	C. POPULATION EQUIVALENT (SS) OF INDUSTRIAL WASTES (pe)
D. VOLUME OF INDUSTRIAL WASTES (mgd)	E. COMPOSITION AND CHARACTERISTICS OF INDUSTRIAL WASTES
F. MAIN DIFFICULTY EXPERIENCED WITH INDUSTRIAL WASTE <i>(explain)</i>	

9. HAVE INDUSTRIAL EFFLUENT PROBLEMS BEEN SOLVED? YES NO *(If yes, how?)*

9A. METHOD OR METHODS USED TO ASSESS INDUSTRIAL WASTE TREATMENT COST *(check appropriate box)*

NO CHARGE BY CITY PROPERTY TAX WATER USE ASSESSMENT CHARGE BASED ON FLOW

CHARGED BASED ON BOD CHARGE BASED ON SS OTHER METHODS *(describe)*

COMMENT ON HOW CHARGE IS COLLECTED *(fixed charge, sliding scale, etc.)*

9B. IS INDUSTRIAL WASTE ORDINANCE IN EFFECT AND ENFORCED? YES NO

10. WHO PROVIDED INITIAL INSTRUCTION IN THE OPERATION OF THE PLANT?

11. IS A MANUAL OF PRACTICE OR INSTRUCTIONS AVAILABLE? YES NO

IF YES, WHO WROTE AND PROVIDED IT?

12. ESTIMATE OF MAN-HOURS PER WEEK DEVOTED TO LABORATORY WORK AND MAINTENANCE OF RECORDS AND REPORTS

D. PLANT PERSONNEL *(Annual Average Staff for Most Recent Year Reported in Section "F")*

JOB CATEGORY	NUMBER	TOTAL MAN-HOURS PER WEEK	TOTAL NUMBER CERTIFIED OR LICENSED	RANGE IN YEARS EMPLOYED AT PRESENT PLANT	RANGE IN YEARS OF EXPERIENCE IN TREATMENT
1. SUPERINTENDENT					
2. OPERATORS					
3. LABORATORY TECHNICIAN					
4. LABORERS					
5. PART-TIME LABORERS					
6. TOTAL					